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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,780	07/24/2003	Uhlig Albrecht	61610072AA	8190

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EXAMINER	
GARRETT, DAWN L	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,780	ALBRECHT ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2-28-2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment received January 6, 2006. Claims 1, 13, 25, and 26 were amended. Claims 1-26 and 29 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4, 5, and 8-11 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5,652,067). Ito et al. disclose an organic electroluminescent device comprising a substrate (1), an OEL layer (4) per the instant "emissive layer", an EITL layer (12) per the instant "electron injecting layer", a cathode layer (5) per the instant "electrical conducting layer", and a conducting layer (7) per the instant "cathode contact layer" which contacts the cathode layer (5) but does not contact the EITL layer (12) (see Figure 2). Polymers such as poly(2,5-diheptyloxy-p-phenylenevinylene), which is considered to be a polyphenylenevinylene per claims 4 and 5, comprise the light emitting layer (OEL) (see col. 17, lines 1-2). A hole injecting layer (3) and an emissive layer (4) are included in the Ito et al. device per claim 8 (see Figure 2). The cathode layer (5) per the instant "electrical conducting layer" is comprised of aluminum or silver (see col. 18, lines 45-47). The Ito et al. anode is formed of indium tin oxide (ITO) per claim 11 (see col. 7, lines 20-25). Per claim 9, NPB recited in claim 9 is taught within formula (8) for the HITL (3) of the Ito et al. device (see col. 12, lines 1-17). The compound A1q3 is disclosed by Ito et al. as a preferred OEL material per claim 9 (see Example 1, lines 39-41). Ito et al. fails to *exemplify* a device without a hole injecting transporting layer (HITL) between the emissive layer and the anode; however, Ito et al. does teach in the abstract

the device is a "multilayered structure successively having at least an anode layer, an organic electroluminescent layer and a cathode layer, a sealing layer having at least one compound selected from the group consisting of a metal oxide, a metal fluoride and a metal sulfide is further provided on the electrode layer formed later. A hole injecting and transporting layer is preferably provided between the anode layer and the organic electroluminescent layer" (emphasis added). Although a hole injecting layer is preferably part of the device, Ito et al. recognizes that the device may be made without a hole injecting layer and may function without a hole injecting layer. It would have been obvious to one of ordinary skill in the art at the time of the invention to have made the Ito et al. device without a hole injecting layer, because Ito et al. recognizes the device can be made without a hole injecting layer. In addition, the following in noted: Non-preferred embodiments can be indicative of obviousness (see *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Boe*, 148 USPQ 507 (CCPA 1976); *In re Kohler*, 177 USPQ 399 (CCPA 1973)), and a reference is not limited to working examples (see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982)).

4. Claims 13, 14, 16, 17, and 20- 23 are also again rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5,652,067). Ito et al. discloses an organic electroluminescent device comprising a substrate (1), an OEL layer (4) per the instant "emissive layer", a cathode layer (5) per the instant "electrical conducting layer", a conducting layer (7) per the instant "cathode contact layer", and a hard-corrosive metal layer (15) which reads upon the "connecting layer" that directly contacts the conducting layer (cathode contact layer) and the cathode layer (5) (the electrical conducting layer) (see Figure 10). Although not expressly shown in the

preferred embodiment of Figure 10 in the Ito et al. patent, the device may further include an EITL layer (12) per the instant "electron injecting layer" as shown in Figures 2 and 9 to enable electrons to be efficiently transported from the cathode (5) to the OEL (4) (see col. 17, lines 60-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included an EITL layer in the device depicted in Figure 10 in order to improve electron transport from the cathode to the OEL, because Ito et al. clearly teaches an EITL layer for providing this improvement. The hard-corrosive metal layer (15) may be comprised of copper or gold per claim 14 (see col. 19, lines 15-17). Polymers such as poly(2,5-diheptyloxy-p-phenylenevinylene), which is considered to be a polyphenylenevinylene per claims 16 and 17, comprise the light emitting layer (OEL) (see col. 17, lines 1-2). A hole injecting layer (3) and an emissive layer (4) are included in the Ito et al. device per claim 20 (see Figure 2). The cathode layer (5) per the "electrical conducting layer" is comprised of aluminum or silver (see col. 18, lines 45-47) per claim 22. The Ito et al. anode is formed of indium tin oxide (ITO) per claim 23 (see col. 7, lines 20-25). Per claim 21, NPB recited in claim 21 is taught within formula (8) for the HITL (3) of the Ito et al. device (see col. 12, lines 1-17). The compound A1q3 is disclosed by Ito et al. as a preferred OEL material per claim 21 (see Example 1, lines 39-41).

5. Claims 12 and 24 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5,652,067) in view of Kaneko et al. (JP 09-082476). Ito et al. (US 5, 652,067) is relied upon as set forth above for the rejection of claims 1 and 13. Ito et al. discloses a conducting layer (7) per the "cathode contact layer" (see figures 2, 9 and 10); however, Ito et al. fails to describe specifically a material that comprises the conducting layer (7). Ito et al. states the conductive layer (7) "may have the same construction as those of conventional EL devices"

(see col. 19, line 66 to col. 20, line 2). Kaneko et al. teaches an organic electroluminescent device that comprises an input terminal l2B that is analogous to the claimed "cathode contact layer" (see abstract and Figures). The input terminal 12B as well as the anode electrode 12A are comprised of indium tin oxide (ITO) (see paragraph 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the Ito et al. conducting layer (7) from indium tin oxide (ITO), because Kaneko et al. teaches ITO as a conventional material for the component used in an organic electroluminescent device.

6. Claims 3 and 15 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5,652,067) in view of Utsugi et al. (US 5,837,391). While Ito et al. teaches an EITL (electron injecting transporting layer) (12) for the organic electroluminescent device per the "electron injecting layer" which may comprise an oxadiazole derivative (see col. 18, lines 1-2), Ito et al. fails to teach the electron injecting layer is comprised of at least one of lithium fluoride, barium, barium oxide, and calcium oxide. Utsugi et al. teaches in analogous art the use of either oxadiazole derivatives, barium oxide, or calcium oxide as an electron injecting layer (see col. 10, lines 51-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used calcium oxide or barium oxide in place of an oxadiazole derivative in the Ito et al. device, because Utsugi et al. teaches the equivalency of these materials as electron injecting materials for an electroluminescent device electron injecting layer.

7. Claims 6, 7, 18, 19, 25, 26 and 29 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5,652,067) in view of Liao et al. (US 2003/0170491). Ito et al. teaches an OEL layer (4) and a hole injecting-transporting layer (3) as part of an organic electroluminescent device. Polymers such as poly(2,5-diheptyloxy-p-phenylenevinylene), which

is considered to be a para-phenylenevinylene, comprise the light emitting layer (OEL) (see col. 17, lines 1-2). Ito et al. fail to teach the hole injecting layer is comprised of polyethylene-dioxythiophene (PEDOT). Liao et al. teaches, in analogous art, the use of a PEDOT containing hole transporting layer in conjunction with a PPV luminescent layer in an organic electroluminescent device (see par. 186). It would have been obvious to one of ordinary skill in the art to have selected PEDOT as the material for the HITL layer, because Liao et al. teaches PEDOT works as a hole transporting material when adjacent to a PPV light emitting layer in an organic electroluminescent device. (The examiner notes that applicant's definition of an emissive layer includes an embodiment wherein the emissive layer comprises two layers).

With regard to claim 25, 26, and 29, Liao teaches it is known in the art of electroluminescent devices that layers of the devices may be formed by shadow mask. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the method of shadow masking to form any of the layers of the Ito et al. device, because Liao teaches shadow mask deposition is well know in the art and an equivalent deposition method to other well known and frequently used methods known in the art (see Liao par. 191).

Response to Arguments

8. Applicant's arguments filed January 6, 2006 have been fully considered but they are not persuasive. With regard to the rejections over the product claims (which are product-by-process type claims), applicant argues the references teach a method of forming the layer(s) other than by shadow mask deposition. Applicant has not shown that the shadow mask method forms a product different from the prior art. See M.P.E.P. § 2113:

> "Even though product-by-process claims are limited by and defined by the process, determination of

> patentability is based on the **product itself**. The patentability of a product does not depend on its **method of production**. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)... "The Patent Office bears a lesser burden proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessman*, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, **the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.** *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

With regard to method claims 25, 26, and 29, Liao teaches the method of shadow mask deposition is known in the art and is equivalent to other deposition methods that are well known and frequently used in the art for forming layers of an electroluminescent device (see Liao par. 191).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dawn Garrett
Primary Examiner
Art Unit 1774

March 15, 2006